#9

SEQUENCE LISTING

<110> CROZE, EDWARD M.
FAULDS, DARYL
WAGNER, T. CHARIS

<120> NOVEL INTERFERON FOR THE TREATMENT OF MULTIPLE SCLEROSIS

<130> BERLX-88

<140> 09/881,050
<141> 2001-06-15

<150> 60/212,046
<151> 2000-06-16

<160> 30

<170> PatentIn Ver. 2.1

<210> 1
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligcnucleotide

<400> 1
atgattatca agcacttctt tgga 24

<210> 2
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 2
ctacctcggg cttctaaact ctgt 24

<210> 3
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 3
ggaattccta ctacctcggg cttctaa 27

<210> 4
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 4
gcgcgcgcat atgctagatt tgaaactgat tat 33

<210> 5
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 5
tttaggtgac actatagaat 20

<210> 6
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 6
taaaatggat agaatatata a 21

<210> 7
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 7
Lys His Phe Phe Gly Thr Val
1 5

<210> 8
<211> 8

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 8
Ile Ile Phe Gln Gln Arg Gln Val
1 5

<210> 9
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 9
Lys Ser Leu Ser Pro
1 5

<210> 10
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 10
Phe Arg Ala Asn Ile
1 5

<210> 11
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 11
Ala Glu Lys Leu Ser Gly Thr
1 5

<210> 12
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 12
Cys Leu Phe Phe Val Phe Ser
1 5

<210> 13
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 13
Gln Gly Arg Pro Leu Asn Asp Met Lys Gln Glu Leu Thr Thr Glu Phe
1 5 10 15

Arg Ser Pro Arg
20

<210> 14
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 14
Lys Leu Ser Lys Gln Gly Arg Pro Leu Asn Asp Met Lys Gln Glu Leu
1 5 10 15

Thr Thr Glu Phe Arg
20

<210> 15
<211> 1201
<212> DNA
<213> Homo sapiens

<400> 15
tttaggtgac actatagaat actcaagctt gactaaatat ttagaaagca cattgtgttc 60
agtgaaactt tgtatataat gaatagaata ataaaagatt atgttggatg actagtctgt 120
aattgcctca aggaaagcat acaatgaata agttattttg gtacttcctc aaaatagcca 180
acacaatagg gaaatggaga aaatgtactc tgaacaccat gaaaagggaa cctgaaaatc 240
taatgtgtaa acttggagaa atgacattag aaaacgaaag ctacaaaaga gaacactctt 300
caaaataatc tgagatgcat gaaaggcaaa cattcactag agctggaatt tccctaagtc 360
tatgcaggga taagtagcat atttgacctt caccatgatt atcaagcact tctttggaac 420
tgtgttggtg ctgctggcct ctaccactat cttctctcta gatttgaaac tgattatctt 480

```
ccagcaaaga caagtgaatc aagaaagttt aaaactcttg aataagttgc aaaccttgtc 540
aattcagcag tgtctaccac acaggaaaaa ctttctgctt cctcagaagt ctttgagtcc 600
tcagcagtac caaaaaggac acactctggc cattctccat gagatgcttc agcagatctt 660
cagcctcttc agggcaaata tttctctgga tggttgggag gaaaaccaca cggagaaatt 720
cctcattcaa cttcatcaac agctagaata cctagaagca ctcatgggac tggaagcaga 780
gaagctaagt ggtactttgg gtagtgataa ccttagatta caagttaaaa tgtacttccg 840
aaggatccat gattacctgg aaaaccagga ctacagcacc tgtgcctggg ccattgtcca 900
agtagaaatc agccgatgtc tgttctttgt gttcagtctc acagaaaaac tgagcaaaca 960
aggaagaccc ttgaacgaca tgaagcaaga gcttactaca gagtttagaa gcccgaggta 1020
ggtggaggga ctagaggact tctccagaca tgattcttca tagagtggta atacaattta 1080
tagtacaatc acattgcttt gattttgtgt atatatatat ttatctgtgt tttaagattg 1140
tgcatattga ccacaattgt ttttattttg taatgtggct ttatatattc tatccatttt 1200
a                                                                  1201
```

<210> 16
<211> 208
<212> PRT
<213> Homo sapiens

<400> 16

```
Met Ile Ile Lys His Phe Phe Gly Thr Val Leu Val Leu Leu Ala Ser
  1               5                  10                  15

Thr Thr Ile Phe Ser Leu Asp Leu Lys Leu Ile Ile Phe Gln Gln Arg
             20                  25                  30

Gln Val Asn Gln Glu Ser Leu Lys Leu Leu Asn Lys Leu Gln Thr Leu
         35                  40                  45

Ser Ile Gln Gln Cys Leu Pro His Arg Lys Asn Phe Leu Leu Pro Gln
     50                  55                  60

Lys Ser Leu Ser Pro Gln Gln Tyr Gln Lys Gly His Thr Leu Ala Ile
 65                  70                  75                  80

Leu His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe Arg Ala Asn Ile
                 85                  90                  95

Ser Leu Asp Gly Trp Glu Glu Asn His Thr Glu Lys Phe Leu Ile Gln
            100                 105                 110

Leu His Gln Gln Leu Glu Tyr Leu Glu Ala Leu Met Gly Leu Glu Ala
        115                 120                 125

Glu Lys Leu Ser Gly Thr Leu Gly Ser Asp Asn Leu Arg Leu Gln Val
    130                 135                 140

Lys Met Tyr Phe Arg Arg Ile His Asp Tyr Leu Glu Asn Gln Asp Tyr
145                 150                 155                 160

Ser Thr Cys Ala Trp Ala Ile Val Gln Val Glu Ile Ser Arg Cys Leu
                165                 170                 175

Phe Phe Val Phe Ser Leu Thr Glu Lys Leu Ser Lys Gln Gly Arg Pro
            180                 185                 190
```

```
Leu Asn Asp Met Lys Gln Glu Leu Thr Thr Glu Phe Arg Ser Pro Arg
        195                 200                 205


<210> 17
<211> 187
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNB amino
      acid sequence

<400> 17
Met Thr Asn Lys Cys Leu Leu Gln Ile Ala Leu Leu Leu Cys Phe Ser
  1               5                  10                  15

Thr Thr Ala Leu Ser Met Ser Tyr Asn Leu Leu Gly Phe Leu Gln Arg
             20                  25                  30

Ser Ser Asn Phe Gln Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg
         35                  40                  45

Leu Glu Tyr Cys Leu Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu
     50                  55                  60

Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile
 65                  70                  75                  80

Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser
                 85                  90                  95

Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val
            100                 105                 110

Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu
        115                 120                 125

Lys Glu Asp Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys
    130                 135                 140

Arg Tyr Tyr Gly Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser
145                 150                 155                 160

His Cys Ala Trp Thr Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr
                165                 170                 175

Phe Ile Asn Arg Leu Thr Gly Tyr Leu Arg Asn
            180                 185


<210> 18
<211> 189
<212> PRT
<213> Unknown Organism
```

<220>
<223> Description of Unknown Organism: IFNalpha8 amino acid sequence

<400> 18
Met Ala Leu Thr Phe Tyr Leu Leu Val Ala Leu Val Val Leu Ser Tyr
1 5 10 15

Lys Ser Phe Ser Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Glu Phe Pro Gln Glu
50 55 60

Glu Phe Asp Asp Lys Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
85 90 95

Ser Ala Ala Leu Asp Glu Thr Leu Leu Asp Glu Phe Tyr Ile Glu Leu
100 105 110

Asp Gln Gln Leu Asn Asp Leu Glu Ser Cys Val Met Gln Glu Val Gly
115 120 125

Val Ile Glu Ser Pro Leu Met Tyr Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Ser Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Leu Ser Ile Asn Leu Gln Lys Arg Leu Lys Ser Lys Glu
180 185

<210> 19
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha7 amino acid sequence

<400> 19
Met Ala Arg Ser Phe Ser Leu Leu Met Val Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

```
Arg Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
         35                  40                  45

Pro Phe Ser Cys Leu Lys Asp Arg His Glu Phe Arg Phe Pro Glu Glu
     50                  55                  60

Glu Phe Asp Gly His Gln Phe Gln Lys Thr Gln Ala Ile Ser Val Leu
 65                  70                  75                  80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
                 85                  90                  95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
            100                 105                 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
        115                 120                 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Phe Ile Leu Ala Val Arg
    130                 135                 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Glu Lys Lys Tyr Ser
145                 150                 155                 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
                165                 170                 175

Phe Ser Thr Asn Leu Lys Lys Gly Leu Arg Arg Lys Asp
            180                 185
```

<210> 20
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha6 amino acid sequence

<400> 20

```
Met Ala Leu Pro Phe Ala Leu Leu Met Ala Leu Val Val Leu Ser Cys
  1               5                  10                  15

Lys Ser Ser Cys Ser Leu Asp Cys Asp Leu Pro Gln Thr His Ser Leu
             20                  25                  30

Gly His Arg Arg Thr Met Met Leu Leu Ala Gln Met Arg Arg Ile Ser
         35                  40                  45

Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Arg Phe Pro Gln Glu
     50                  55                  60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Glu Ala Ile Ser Val Leu
 65                  70                  75                  80

His Glu Val Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
                 85                  90                  95
```

```
Ser Val Ala Trp Asp Glu Arg Leu Leu Asp Lys Leu Tyr Thr Glu Leu
            100                 105                 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Met Gln Glu Val Trp
        115                 120                 125

Val Gly Gly Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
    130                 135                 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145                 150                 155                 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
                165                 170                 175

Ser Ser Arg Asn Leu Gln Glu Arg Leu Arg Arg Lys Glu
            180                 185
```

<210> 21
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha5 amino acid sequence

<400> 21

```
Met Ala Leu Pro Phe Val Leu Leu Met Ala Leu Val Val Leu Asn Cys
  1               5                  10                  15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
            20                  25                  30

Ser Asn Arg Arg Thr Leu Met Ile Met Ala Gln Met Gly Arg Ile Ser
        35                  40                  45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
    50                  55                  60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65                  70                  75                  80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
                85                  90                  95

Ser Ala Thr Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Thr Glu Leu
            100                 105                 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Met Met Gln Glu Val Gly
        115                 120                 125

Val Glu Asp Thr Pro Leu Met Asn Val Asp Ser Ile Leu Thr Val Arg
    130                 135                 140
```

```
Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145                 150                 155                 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
                165                 170                 175

Leu Ser Ala Asn Leu Gln Glu Arg Leu Arg Arg Lys Glu
            180                 185


<210> 22
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha4b amino
      acid sequence

<400> 22
Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
  1               5                  10                  15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
            20                  25                  30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
        35                  40                  45

His Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Glu Glu
    50                  55                  60

Glu Phe Asp Gly His Gln Phe Gln Lys Thr Gln Ala Ile Ser Val Leu
65                  70                  75                  80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
                85                  90                  95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
            100                 105                 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
        115                 120                 125

Val Glu Glu Thr Pro Leu Met Asn Val Asp Ser Ile Leu Ala Val Arg
    130                 135                 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145                 150                 155                 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
                165                 170                 175

Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp
            180                 185
```

<210> 23
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha21 amino acid sequence

<400> 23
Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
85 90 95

Ser Ala Thr Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
100 105 110

Asn Gln Gln Leu Asn Asp Met Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Val Asp Ser Ile Leu Ala Val Lys
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Leu Ser Lys Ile Phe Gln Glu Arg Leu Arg Arg Lys Glu
180 185

<210> 24
<211> 188
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha2 amino acid sequence

<400> 24
Met Ala Leu Thr Phe Ala Leu Leu Val Ala Leu Leu Val Leu Ser Cys
1 5 10 15

Lys Ser Ser Cys Ser Val Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Ser Arg Arg Thr Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45

Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60

Glu Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu His
65 70 75 80

Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys Asp Ser Ser
85 90 95

Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Thr Glu Leu Tyr
100 105 110

Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Gly Val Gly Val
115 120 125

Thr Glu Thr Pro Leu Met Lys Glu Asp Ser Ile Leu Ala Val Arg Lys
130 135 140

Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro
145 150 155 160

Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser Leu
165 170 175

Ser Thr Asn Leu Gln Glu Ser Leu Arg Ser Lys Glu
180 185

<210> 25
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha16 amino acid sequence

<400> 25
Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Ala Gln Met Gly Arg Ile Ser
35 40 45

```
His Phe Ser Cys Leu Lys Asp Arg Tyr Asp Phe Gly Phe Pro Gln Glu
     50                  55                  60

Val Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Ala Phe
 65                  70                  75                  80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asp Ser
                 85                  90                  95

Ser Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Ile Glu Leu
            100                 105                 110

Phe Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Thr Gln Glu Val Gly
        115                 120                 125

Val Glu Glu Ile Ala Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
    130                 135                 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Gly Lys Lys Tyr Ser
145                 150                 155                 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
                165                 170                 175

Phe Ser Thr Asn Leu Gln Lys Gly Leu Arg Arg Lys Asp
            180                 185
```

<210> 26
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha14 amino acid sequence

<400> 26

```
Met Ala Leu Pro Phe Ala Leu Met Met Ala Leu Val Val Leu Ser Cys
  1               5                  10                  15

Lys Ser Ser Cys Ser Leu Gly Cys Asn Leu Ser Gln Thr His Ser Leu
             20                  25                  30

Asn Asn Arg Arg Thr Leu Met Leu Met Ala Gln Met Arg Arg Ile Ser
         35                  40                  45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Glu Phe Pro Gln Glu
     50                  55                  60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
 65                  70                  75                  80

His Glu Met Met Gln Gln Thr Phe Asn Leu Phe Ser Thr Lys Asn Ser
                 85                  90                  95

Ser Ala Ala Trp Asp Glu Thr Leu Leu Glu Lys Phe Tyr Ile Glu Leu
            100                 105                 110
```

Phe Gln Gln Met Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Lys
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Met Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser
165 170 175

Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp
180 185

<210> 27
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha13 amino acid sequence

<400> 27
Met Ala Ser Pro Phe Ala Leu Leu Met Val Leu Val Val Leu Ser Cys
1 5 10 15

Lys Ser Ser Cys Ser Leu Gly Cys Asp Leu Pro Glu Thr His Ser Leu
20 25 30

Asp Asn Arg Arg Thr Leu Met Leu Leu Ala Gln Met Ser Arg Ile Ser
35 40 45

Pro Ser Ser Cys Leu Met Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Pro Ala Ile Ser Val Leu
65 70 75 80

His Glu Leu Ile Gln Gln Ile Phe Asn Leu Phe Thr Thr Lys Asp Ser
85 90 95

Ser Ala Ala Trp Asp Glu Asp Leu Leu Asp Lys Phe Cys Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Met Gln Glu Glu Arg
115 120 125

Val Gly Glu Thr Pro Leu Met Asn Ala Asp Ser Ile Leu Ala Val Lys
130 135 140

Lys Tyr Phe Arg Arg Ile Thr Leu Tyr Leu Thr Glu Lys Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
165 170 175

Leu Ser Thr Asn Leu Gln Glu Arg Leu Arg Arg Lys Glu
180 185

<210> 28
<211> 189
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNalpha10 amino acid sequence

<400> 28
Met Ala Leu Ser Phe Ser Leu Leu Met Ala Val Leu Val Leu Ser Tyr
1 5 10 15

Lys Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Asn Arg Arg Ala Leu Ile Leu Leu Gly Gln Met Gly Arg Ile Ser
35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg His Asp Phe Arg Ile Pro Gln Glu
50 55 60

Glu Phe Asp Gly Asn Gln Phe Gln Lys Ala Gln Ala Ile Ser Val Leu
65 70 75 80

His Glu Met Ile Gln Gln Thr Phe Asn Leu Phe Ser Thr Glu Asp Ser
85 90 95

Ser Ala Ala Trp Glu Gln Ser Leu Leu Glu Lys Phe Ser Thr Glu Leu
100 105 110

Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Ile Leu Ala Val Arg
130 135 140

Lys Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Ile Glu Arg Lys Tyr Ser
145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Leu Ser
165 170 175

Phe Ser Thr Asn Leu Gln Lys Arg Leu Arg Arg Lys Asp
180 185

<210> 29
<211> 195
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNomega1 amino acid sequence

<400> 29
Met Ala Leu Leu Phe Pro Leu Leu Ala Ala Leu Val Met Thr Ser Tyr
1 5 10 15

Ser Pro Val Gly Ser Leu Gly Cys Asp Leu Pro Gln Asn His Gly Leu
20 25 30

Leu Ser Arg Asn Thr Leu Val Leu Leu His Gln Met Arg Arg Ile Ser
35 40 45

Pro Phe Leu Cys Leu Lys Asp Arg Arg Asp Phe Arg Phe Pro Gln Glu
50 55 60

Met Val Lys Gly Ser Gln Leu Gln Lys Ala His Val Met Ser Val Leu
65 70 75 80

His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser
85 90 95

Ser Ala Ala Trp Asn Met Thr Leu Leu Asp Gln Leu His Thr Gly Leu
100 105 110

His Gln Gln Leu Gln His Leu Glu Thr Cys Leu Leu Gln Val Val Gly
115 120 125

Glu Gly Glu Ser Ala Gly Ala Ile Ser Ser Pro Ala Leu Thr Leu Arg
130 135 140

Arg Tyr Phe Gln Gly Ile Arg Val Tyr Leu Lys Glu Lys Lys Tyr Ser
145 150 155 160

Asp Cys Ala Trp Glu Val Val Arg Met Glu Ile Met Lys Ser Leu Phe
165 170 175

Leu Ser Thr Asn Met Gln Glu Arg Leu Arg Ser Lys Asp Arg Asp Leu
180 185 190

Gly Ser Ser
195

<210> 30
<211> 166
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: IFNgamma amino acid sequence

<400> 30
Met Lys Tyr Thr Ser Tyr Ile Leu Ala Phe Gln Leu Cys Ile Val Leu
1 5 10 15

```
Gly Ser Leu Gly Cys Tyr Cys Gln Asp Pro Tyr Val Lys Glu Ala Glu
            20                  25                  30

Asn Leu Lys Lys Tyr Phe Asn Ala Gly His Ser Asp Val Ala Asp Asn
        35                  40                  45

Gly Thr Leu Phe Leu Gly Ile Leu Lys Asn Trp Lys Glu Glu Ser Asp
    50                  55                  60

Arg Lys Ile Met Gln Ser Gln Ile Val Ser Phe Tyr Phe Lys Leu Phe
65                  70                  75                  80

Lys Asn Phe Lys Asp Asp Gln Ser Ile Gln Lys Ser Val Glu Thr Ile
                85                  90                  95

Lys Glu Asp Met Asn Val Lys Phe Phe Asn Ser Asn Lys Lys Lys Arg
            100                 105                 110

Asp Asp Phe Glu Lys Leu Thr Asn Tyr Ser Val Thr Asp Leu Asn Val
        115                 120                 125

Gln Arg Lys Ala Ile His Glu Leu Ile Gln Val Met Ala Glu Leu Ser
    130                 135                 140

Pro Ala Ala Lys Thr Gly Lys Arg Lys Arg Ser Gln Met Leu Phe Arg
145                 150                 155                 160

Gly Arg Arg Ala Ser Gln
                165
```